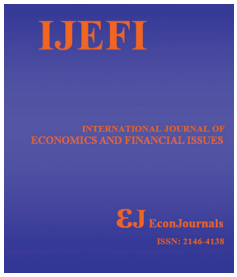


International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2016, 6(4), 1468-1473.

Modelling the Determinants of Malaysian Household Debt

Hafizah Hammad Ahmad Khan[1]*, Hussin Abdullah[2], Shamzaeffa Samsudin[3]

[1]School of Economics, Finance and Banking, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia, [2]School of Economics, Finance and Banking, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia, [3]School of Economics, Finance and Banking, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia. *Email: hafizah0486@gmail.com

ABSTRACT

This paper explores the determinants of household debt composition in Malaysia. By utilizing the bound test and autoregressive distributed lag modelling approach, findings of this study reveals that in the long run period, a change in income level, housing price and population would have a positive impact on mortgage debt while rise in interest rates and cost of living would exert a negative influence. In addition, findings of this study supported that the household uses the debt as a substitute for income to finance the rising consumption because of a higher living cost. Findings of this study could provide some guidance to policymakers in controlling the mounting debt level and help in realizing the nation economic goals.

Keywords: Household Debt, Mortgage Debt, Consumer Debt, Bound Test, Auto-regressive Distributed Lag Modeling
JEL Classifications: E00, E21, E31, E43, E51, G00

1. INTRODUCTION

Recently, household debt is growing excessively in both developed and developing countries, which raised concerns of the economist on the risk of financial instability (World Bank, 2014). Rising demand for loans together with the objective of financial intermediaries in making a huge profit by loaning out excessively has contributed to substantial debt accumulation. Even though household debt can boost the nation economic growth through its impact on aggregate demand, however, excessive debt level may eventually bring a negative effect on the economic performance of a country (Cecchetti et al., 2011).

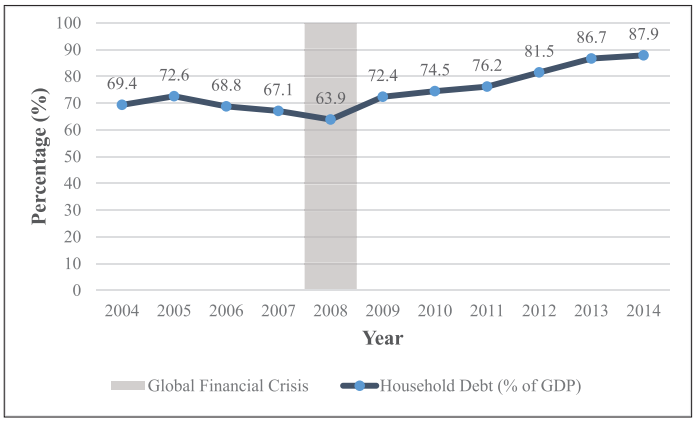
Recent data have shown that there is a surge in household debt among the developing countries, which is at par with the developed nation especially in Malaysia (International Monetary Fund, 2014). The study of household debt in the country is crucial to avoid the risk of a credit bubble, which has been experienced in the United States during the global financial crisis. Although the study of household debt has been conducted from various perspectives, however, this issue remained crucial and needs to be examined on a country-level due to the differences in economic, cultural and environmental background across countries.

This paper is divided as follows. Section 2 generally reviews the household debt in Malaysia followed by the literature review discussed in Section 3. In Section 4, the methodology employed in this study is presented. Section 5 discusses the findings of this study while the conclusions and recommendation are presented in Section 6.

2. HOUSEHOLD DEBT IN MALAYSIA

Since the past decade, the Malaysian economy has witnessed a sharp increase in household debt. Even though the presence of global financial crisis in 2008 due to the U.S. subprime crisis has led almost all the economies to dive into recession, however, the household debt in Malaysia still continue to be rising significantly and reached a level which is at par with the developed nation such as the United States (OECD, 2015). As showed in Figure 1, before the occurrence of the crisis, the household debt level has been slowing down but eventually started to hike following the crisis. Since then, household debt in Malaysia has been nearly three quarters of gross domestic product (GDP) and risen to 87.9% of GDP in 2014, which is among the highest in the developing and the Asian countries (Bank Negara Malaysia, 2014).

Figure 1: Household debt in Malaysia (percentage of gross domestic product). Bank Negara Malaysia financial stability and payment systems report and Bank Negara Malaysia monthly statistical bulletin



Apparently, the main contributor to growth in household debt in Malaysia is due to the purchase of residential property, which accounts for almost 44% of the total household debt and followed by car loans, personal loans and others (Bank Negara Malaysia, 2013). The division of household debt in the form of consumer debt and mortgage debt is necessary in the empirical examination of the determinants of household debt since the magnitude of the factors being examined in both models may differ. However, study based on the composition of debt is very limited especially in Malaysia.

Even though the household debt is necessary for the economy to grow, however, high level of household debt if not associated with growth in income and productivity may be harmful for the economy since it may lead to a higher default rate. Unfortunately, since the past decade, the growth in Malaysia's household debt is more than double than the growth of the GDP suggesting that the rapid rise in the household debt has hinder the economic growth of the country (Bank Negara Malaysia, 2014). Thus, the study of the prominent factors contributing to the mounting household debt in Malaysia is vital for policy formulation and could help the country in realizing its economic goals in achieving the status of a high income country by the year 2020.

Besides that, recent trends also show that the cost of living has increased significantly especially due to the rise in food prices which put an upward pressure on the household consumption especially among low and middle income population (Department of Statistics Malaysia, 2014). Consistently, evidence based on the global food price also supports that food prices have increased sharply (Food and Agriculture Organization of the United Nations 2015). Apparently, rising cost of living may restrict household consumption and thereby may encourage them to use the credit facilities to maintain their normal lifestyle. Hence, the growth in the wage level, which is unable to match with the rising cost of living, may have greatly affected the population especially among the low and middle-income earners which results in high debt levels.

So far, past studies conducted on the effect of living cost on household debt in has mostly been examined at a micro level study. Thus, further investigation at a macro level will be useful to determine the effect at an aggregate level and thereby provide a significant contribution to the study of household debt. Besides that, the study of household debt composition is very limited especially in Malaysia and hence further study based on composition of debt is useful since the outcome of the study may differ according to the type of debt and thereby could provide guidance for effective policy formulation policy to control high debt level and indirectly help to realize the nation's economic goals in becoming a high income country by the year 2020.

3. LITERATURE REVIEW

The most prominent theory on the study of household debt is the life cycle model (LCM) developed by Modigliani and Brumberg (1954) which assume that consumers are rational and forward looking. According to this theory, household debt will be high for the households in the early working period since they need to finance current consumption, which normally exceeds income level in order to start their career and family life. In the mid working period, household may experience a positive income growth due to higher skills, knowledge and experience and thereby will start saving for their retirement and finally will choose to dissave during retirement. As a result, households will choose to maximize their utility by controlling their consumption over time, which depends on their lifetime income including initial and future wealth and the level of interest rates.

Most of the past studies have supported that household debt has a positive relationship with the income level whereby as income rises, the debt level will also rise since it raises the consumer's confidence in making loans (Crook, 2001; Calza et al., 2003; Hofmann, 2004; Meng et al. 2013; Mokhtar and Ismail, 2013). On the other hand, several studies have found a negative relationship between income and household debt (Livingstone and Lunt, 1992; Turinetti and Zhuang, 2011; Meniago et al. 2013; Rahman and Masih, 2014). However, study conducted by Chien and Devaney (2001) claimed that income is negatively related to debt which in the form of credit card debt. Hence, the relationship between income level and household debt may differ according to the types of debt.

Besides that, evidence based on the past studies has also supported that the low cost of borrowing has encourage household borrowing and thereby lead to the run up in the household debt (Pearce, 1985; Hofmann, 2004; Dynan and Kohn, 2007; Turinetti and Zhuang, 2011; Meng et al. 2013; Meniago et al. 2013; Mokhtar and Ismail, 2013). On the other hand, some studies have found that the interest rate does not affect household debt (Crook, 2001; Rahman and Masih, 2014). This may be due to the effect of interest rates, which are ambiguous due to the presence of income and substitution effect (Debelle, 2004b).

Despite that, housing prices also play a crucial role in explaining the rise in household debt since it is the most dominant form of wealth in the household portfolio (Beer and Schürz 2007). Some studies also indicate that changes in housing wealth would have a greater effect on household consumption rather than other form of assets (Benjamin et al., 2004; Case et al., 2005; Carroll et al.

2011; Moroke, 2014). Other studies state that rise in housing prices positively influence the household debt mainly due to the rise in mortgage payments (Debelle 2004a; Dynan and Kohn, 2007; Akerlof and Shiller, 2009; Turinetti and Zhuang, 2011; Meng et al. 2013; Meniago et al. 2013; Rahman and Masih, 2014). In contrast, a study carried out by Mokhtar and Ismail (2013) in Malaysia using the VECM approach found that house prices have no effect on the debt level. Hence, the investigation based on the composition of debt will be plausible since a rise in housing prices may exert more influence on the mortgage debt.

Besides that, the importance of demographic effect has also been emphasized in the literature as a proxy for life cycle. Study done by Wasberg et al. (1992) in the United States found that the young households have a higher financial commitment in debt servicing. As a result, higher percentage of young households in the country will lead to a higher debt accumulation (Pearce, 1985). Besides that, population growth also has a positive impact on household debt but the effect is low (Meng et al. 2013). In contrast, Turinetti and Zhuang (2011) in their study states that the retiring population and population with a high school education have a negative influence on the household debt while household with a minimum college education and working age population have shown to exert a positive influence. Hence, the effect of demographic may differ based on the demographic indicator used in the study.

Correspondingly, even though the LCM could be used to explain the household debt, however, there are some limitations of the model. The theoretical model assumes that households are rational and forward-looking and thus may be driven to borrow based on their expected lifetime income. However, in reality, household may also depend on the current situation in deciding to engage in borrowing activities. The trend of rising cost of living in Malaysia may eventually lead to higher consumption and thereby encourage the household to use the debt as a form of wage substitution. This is supported by the study carried out by Kim et al., (2014) and Dynan and Kohn (2007) which suggest that household borrowing to finance living expenditure is rising. Consistently, Boushey and Weller (2008) and Weller (2007) claimed that the rise in consumer credit is due to the rise in spending for necessities instead of wasteful expenditure. However, this study does not investigate on how far the fluctuation in the price level has influences the household debt.

Therefore, this study aims to investigate the determinants of the household debt composition by using Malaysia by focusing on the roles of living cost. In particular, the food price index will be used as the measure of living cost since it has the highest weighting in the Malaysia consumer price index due to its importance on household consumption (Department of Statistics Malaysia, 2014). Also, the used of the food price could help to avoid the multicollinearity problem the housing prices usually been included in the household debt model to capture the wealth effect.

4. METHODOLOGY

The focus of this study is to investigate the reasons behind the mounting household debt in Malaysia. Due to the limitation of data availability, this study uses quarterly time series data from Q1:1999 to Q4:2014. The dependent variable is the mortgage debt and consumer debt. In this study, mortgage debt refers to loan on residential properties while consumer debt refers to the sum of personal loan, credit card debt, automobile loan and purchase of securities. The data used in this study were collected from the Department of Statistics Malaysia, Bank Negara Malaysia and the National Property Information Centre (NAPIC). Based on the LCM framework, the following model specification has been developed for this study.

$$LMD = \beta_0 + \beta_1 LGDP + \beta_2 IR + \beta_3 LHPI + \beta_4 LFPI + \beta_5 LPOP + \varepsilon \quad (1)$$

$$LCD = \beta_0 + \beta_1 LGDP + \beta_2 IR + \beta_3 LHPI + \beta_4 LFPI + \beta_5 LPOP + \varepsilon \quad (2)$$

Where,

LMD: Mortgage debt, *LCD*: Consumer debt, *LGDP*: Gross domestic product, *IR*: Interest rate, *LHPI*: Housing price index, *LFPI*: Food price index, *LPOP*: Working aged population, ε: Error terms.

All of the variables have been transformed into natural logarithm except for the interest rates to obtain linearity and reduce the problem of heteroscedasticity. It is expected that all the variables will carry a positive sign except for the interest rate.

4.1. Econometric Procedure

Firstly, this study will employ the augmented Dicky–Fuller (ADF) tests in order to check the stationary of the variables. The null hypothesis is H_0: $\delta = 0$ which implies that the series contains a unit root and the lag will be chosen based on the Akaike Information Criterion (AIC). Secondly, this study employs the autoregressive distributed lag (ARDL) modeling approach since it is suitable for small sample study (Narayan, 2005). As stated in Pesaran et al., (2001), the ARDL procedure includes two steps. First, the use of ARDL bounds testing approach to determine the long run relationship among the variables and the estimation equations are specified as follows:

$$\Delta LMD_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LMD_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LGDP_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta IR_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LHPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta LFPI_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta LPOP_{t-i} + \sigma_1 LMD_{t-1} + \sigma_2 LGDP_{t-1} + \sigma_3 IR_{t-1} + \sigma_4 LHPI_{t-1} + \sigma_5 LFPI_{t-1} + \sigma_6 LPOP_{t-1} \sigma_6 LPOP_{t-1} + \varepsilon_t \quad (3)$$

$$\Delta LCD_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LCD_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LGDP_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta IR_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LHPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta LFPI_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta LPOP_{t-i} + \sigma_1 LCD_{t-1} + \sigma_2 LGDP_{t-1} + \sigma_3 IR_{t-1} + \sigma_4 LHPI_{t-1} + \sigma_5 LFPI_{t-1} + \sigma_6 LPOP_{t-1} + \varepsilon_t \quad (4)$$

Where Δ is the first difference operator and p is the optimal lag length with β_1 to β_6 represent the short run dynamics of the model while σ_1 to σ_6 represents the long run relationship. Since this study is based on quarterly data, the maximum number of lag used is four, which is selected using the AIC. If the bound testing confirms the existence of the long run relationship, the following model is estimated:

$$\Sigma LMD_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LMD_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LGDP_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta IR_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LHPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta LFPI_{t-i} + \sum_{i=o}^{p} \beta_6 \Delta LPOP_{t-i} + \lambda ECT_{t-1} + \varepsilon_t \quad (5)$$

$$\Delta LCD_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LCD_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LGDP_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta IR_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LHPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta LFPI_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta LPOP_{t-i} + \lambda ECT_{t-1} + \varepsilon_t \quad (6)$$

Where λ is the speed of adjustment parameter, which should be significant and carry a negative sign, which supports the existence of cointegration among the variables while ECT is one period lagged of the error correction terms. Finally, diagnostic test will be conducted to check for the robustness of the model.

5. RESULTS AND DISCUSSION

As a preliminary test, this study conducted the ADF unit root test. Result of the test supported that none of the variable is integrated at order two, I (2). Hence, this study proceeds with the ARDL bound test to determine the existence of a long run relationship among the variables. The results of the F-statistics shown in Table 1 confirm the existence of cointegration among the variables. Hence, the long run coefficient and the speed of adjustment of the variable can be determined, which is presented in Tables 2 and 3 respectively.

The estimation of Model 1 is based on ARDL (1, 1, 4, 3, 4, 4) lag while Model 2 is based on ARDL (1, 0, 4, 4, 2, 0) with the number of lag for each of the variable chosen using AIC. The result based on the long run model shown in Table 2 shows that the rise in income level, housing price and working age population has a positive impact on mortgage debt while interest rate and cost of living would exert a negative influence. On the other hand, results based on consumer debt suggest that increase in income level, interest rate, cost of living and working age population has a positive influence on the debt level while housing price shows a negative impact. All of the variables are found to be statistically significant except for housing prices, which are found to be insignificant in the case of consumer debt. This may be due to the effect of house prices, which is more dominant on the mortgage debt. Finally, the diagnostic test supported that the is no serial correlation or heteroscedasticity problem in both models and the stability test confirms that both models are stable.

The results obtained can be analysed as follows: First, the roles of income level are found to be positive and significant in the entire model, which is consistent with the expected sign. These results imply that a 10% increases in household income will results in 1.39% increase in mortgage debt while consumer debt will rise by 1.09%. On the other hand, the negative impact of the cost of borrowing is consistent with the expected sign for the case of mortgage debt. In contrast, the interest rate indicates a positive influence on consumer debt, which may be due to this type of debt, which is riskier, and hence the banking sector may be more selective in giving out loans. As a result, the borrower who needs money may be willing to pay a higher cost of borrowing in order to obtain the fund. Findings suggest that increase in the cost of borrowing by 1% point will decrease the mortgage debt by 1.6% while consumer debt is expected to rise by 0.7%.

In the case of housing prices, result suggests that rise in housing price has a positive impact on mortgage debt which is consistent with the expected sign while the effect on consumer debt is found to be inverse. However, this variable is found to be insignificant in the case of consumer debt. Findings of this study indicate that as the house prices increase by 10%, the mortgage debt level will increase by 4.99% while the consumer debt is expected to decrease by 0.34%, which suggest that household debt has been rising due to higher housing services.

On the other hand, the food price has been found to give a negative influence on mortgage debt but positive in the case of consumer debt. As the cost of living rises, households will choose to reduce their spending on asset such as housing while the demand on consumer debt will rise since households may choose to borrow in order to support daily needs. Hence, this result supports that the household uses the debt as wage substitution such as the use of credit card in order to meet their living expenses. Findings of this study suggest that 1% increase in the cost of living for basic need is associated with a 2.77% decreases in the mortgage debt while consumer debt rises by 1.09% since households may need additional fund in order to support rising consumption. Finally, results based on the demographic changes imply that as the

Table 1: ARDL bound test

Model	F-statistic	
Model 1: LMD	8.254	
Model 2: LCD	9.099	
Critical value bounds (k=5, n=60)	Lower bound	Upper bound
5% significance level (Narayan, 2005)	2.817	4.097

Table 2: Long run model

Variable	Model 1: LMD	Model 2: LCD
	Coefficient	Coefficient
C	−10.495**	−6.297***
LGDP	0.139**	0.109***
IR	−0.160***	0.073***
LHPI	0.499***	−0.034
LFPI	−2.772***	1.087***
LPOP	10.085***	3.714***

***, **Indicates that the variable is significant at 1% and 5% respectively

Figure 2: Model of mortgage debt

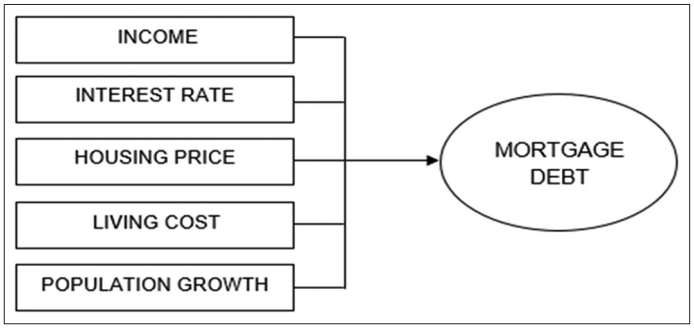


Figure 3: Model of consumer debt

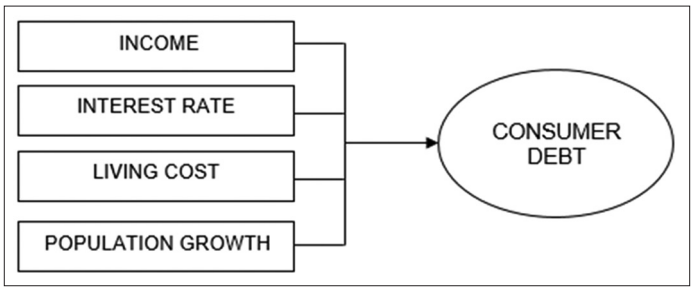


Table 3: Speed of adjustment

Variable	Model 1: LMD	Model 2: LCD
ECT (−1)	−0.367***	−0.912***

***Indicates that the variable is significant at 1% significance level

Table 4: Breusch–Godfrey serial correlation LM test

Indicator	F-statistic	Obs*R-squared	Result
Model 1: LMD	0.486 (0.746)	3.337 (0.503)	Accept H_0. No autocorrelation
Model 2: LCD	0.324 (0.860)	1.928 (0.749)	Accept H_0. No autocorrelation

Value in the parenthesis indicates the P value of the test

Table 5: ARCH test

Indicator	F-statistic	Obs*R-squared	Result
Model 1: LMD	0.162 (0.957)	0.702 (0.951)	Accept H_0. No ARCH effect
Model 2: LCD	0.065 (0.992)	0.286 (0.991)	Accept H_0. No ARCH effect

Value in the parenthesis indicates the P value of the test

working population rises, both types of debt will rise especially for mortgage debt, which will increase, by 10.09% in comparison with consumer debt, which only rises by 3.71 for every 1% rise in the population.

Finally, based on the results of the speed of adjustment shown in Table 3, the error correction terms have a negative sign and significant which confirms the existence of a long run relationship among the variables. It can be concluded that any short-term deviation in the mortgage and consumer debt will be adjusted by 36.7% and 91.2% respectively in a quarter towards the long run equilibrium. All the result obtained in this study is robust as shown by the diagnostic test in Tables 4 and 5.

Based on the discussion above, this study proposed the following model of mortgage and consumer debt determinants as showed in Figures 2 and 3. Further analysis is needed to determine the effect using the disaggregated data of the mortgage and consumer debt in order to provide a more comprehensive analysis of the issue of household debt.

6. CONCLUSION AND RECOMMENDATIONS

This study examines the determinant of household debt composition in Malaysia by focusing on the roles of living cost. By using quarterly data from 1999 to 2014, this study found that rise in income level; housing price and population have a positive influence on mortgage debt while cost of borrowing and living cost are found to exert a negative influence with all the variables found to be significant. In contrast, findings based on consumer debt support that income level, interest rate, food price and population have a positive influence while housing price has been found to give a negative impact with all the variables found to be significant except for housing prices.

Findings of this study imply that households may be concerned about the rising cost of living, and thereby use credit facilities to serve as wage substitution to finance the rising consumption, which is shown by the positive association of the consumer debt. As a result, policymakers may need to examine the effectiveness of current policies used to accommodate the household living cost such as the cash transfer incentives, and determine whether it really helps to reduce the cost of living burden of the household. Given the limitation of this study, further research should be considered to examine which component of the consumer debt will be greatly affected as the living cost rise.

7. ACKNOWLEDGMENT

The authors would like to thank Nik Suriati Nik Hassan from Universiti Teknologi MARA for her constructive comment that has helped to improve this paper. Not forgetting. Mrs. Zulfa Zakaria for proof reading this manuscript.

REFERENCES

Akerlof, G.A., Shiller, R.J. (2009), Animal Spirits: How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism. Vol. 39. Princeton., NJ: Princeton University Press.

Bank Negara Malaysia. (2013), Annual Report 2013.

Bank Negara Malaysia. (2014), Financial Stability and Payment Systems Report 2014.

Bank Negara Malaysia. (2015). Monthly Statistical Bulletin. Retrieved from http://www.bnm.gov.my/index.php?ch=en_publication_synopsis&pg=en_publication_statistical_rpt&ac=4&lang=en&eId=box1.

Beer, C., Schürz, M. (2007), Characteristics of household debt in Austria. Monetary Policy and the Economy, (2), 58-79.

Benjamin, J.D., Chinloy, P., Jud, G.D. (2004), Real estate versus financial wealth in consumption. The Journal of Real Estate Finance and Economics, 29(3), 341-354.

Boushey, H., Weller, C.E. (2008), Has growing inequality contributed to

rising household economic distress? Review of Political Economy, 20(1), 1-22.
Calza, A., Gartner, C., Sousa, J. (2003), Modelling the demand for loans to the private sector in the euro area. Applied Economics, 35(1), 107-117.
Carroll, C.D., Otsuka, M., Slacalek, J. (2011), How large are housing and financial wealth effects? A new approach. Journal of Money, Credit and Banking, 43(1), 55-79.
Case, K.E., Quigley, J.M., Shiller, R.J. (2005), Comparing wealth effects: The stock market versus the housing market. Advances in Macroeconomics, 5(1), 1-34.
Cecchetti, S.G., Mohanty, M.S., Zampolli, F. (2011), The Real Effects of Debt. BIS Working Papers, (No. 352).
Chien, Y., Devaney, S.A. (2001), The effects of credit attitude and socioeconomic factors on credit card and installment debt. The Journal of Consumer Affairs, 35(1), 162-179.
Crook, J. (2001), The demand for household debt in the USA: Evidence from the 1995 survey of consumer finance. Applied Financial Economics, 11(1), 83-91.
Debelle, G. (2004a), Household debt and the macroeconomy. BIS Quarterly Review, March 2004, 51-64.
Debelle, G. (2004b), Macroeconomic Implications of Rising Household Debt. BIS Working Papers, 153.
Department of Statistics Malaysia. (2014). Malaysia Consumer Price Index. Retrieved from http://www.bnm.gov.my/index.php?ch=statistic_nsdp
Dynan, K.E., Kohn, D.L. (2007), The Rise in U.S. Household Indebtedness: Causes and Consequences. Finance and Economics Discussion Series, 37. Washington, DC: Federal Reserve Board.
Food and Agriculture Organization of the United Nations. (2015). FAO Food Price Index. Retrieved from http://www.fao.org/worldfoodsituation/foodpricesindex/en/.
Hofmann, B. (2004), The determinants of bank credit in industrialized countries : Do property prices matter? International Finance, 7(2), 203-234.
International Monetary Fund. (2014). Financial Soundness Indicators. Retrieved from http://data.imf.org/regular.aspx?key=60949720.
Kim, H.J., Lee, D., Son, J.C., Son, M.K. (2014), Household indebtedness in Korea: Its causes and sustainability. Japan and the World Economy, 29, 59-76.
Livingstone, S.M., Lunt, P.K. (1992), Predicting personal debt and debt repayment: Psychological, social and economic determinants. Journal of Economic Psychology, 13(1), 111-134.
Meng, X., Hoang, N.T., Siriwardana, M. (2013), The determinants of Australian household debt: A macro level study. Journal of Asian Economics, 29, 80-90.
Meniago, C., Mukuddem-Petersen, J., Petersen, M.A., Mongale, I.P. (2013), What causes household debt to increase in South Africa? Economic Modelling, 33, 482-492.
Modigliani, F., Brumberg, R. (1954), Utility analysis and the consumption function: An interpretation of cross-section data. In: Kurihara, K., editor. Post-Keynesian Economics. New Brunswick, NJ: Rutgers University Press.
Mokhtar, M., Ismail, A. (2013), Shariah issues in managing household debt: The case of Malaysia. Journal Pengurusan, 37, 63-76.
Moroke, N.D. (2014), Household debts-and macroeconomic factors nexus in the United States : A cointegration and vector error correction approach. Journal of Economics and Behavioral Studies, 6(6), 452-465.
Narayan, P.K. (2005), The saving and investment nexus for China: Evidence from cointegration tests. Applied Economics, 37(17), 1979-1990.
OECD. (2015), Household Dashboard: Cross Country Comparisons. Available from: http://www.stats.oecd.org/Index.aspx?DataSetCode=FIN_IND_FBS.
Pearce, D.K. (1985), Rising household debt in perspective. Federal Reserve Bank of Kansas City Economic Review, 4, 3-17.
Pesaran, M.H., Shin, Y., Smith, R.J. (2001), Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289-326.
Rahman, S., Masih, M. (2014), Increasing household debts and its relation to GDP, interest rate and house price: Malaysia'a perspective. Germany: University Library of Munich.
Turinetti, E., Zhuang, H. (2011), Exploring determinants Of U.S. Household debt. Journal of Applied Business Research, 27(6), 85-91.
Wasberg, C.A., Hira, T.K., Fanslow, A.M. (1992), Credit card usage and consumer debt burden of households. Journal of Consumer Studies and Home Economics, 16(1), 19-32.
Weller, C.E. (2007), Need or want: What explains the run-up in consumer debt? Journal of Economic Issues, XLI(2), 583-591.
World Bank. (2014). World Development Indicators. Retrieved from http://data.worldbank.org/data-catalog/world-development-indicators.